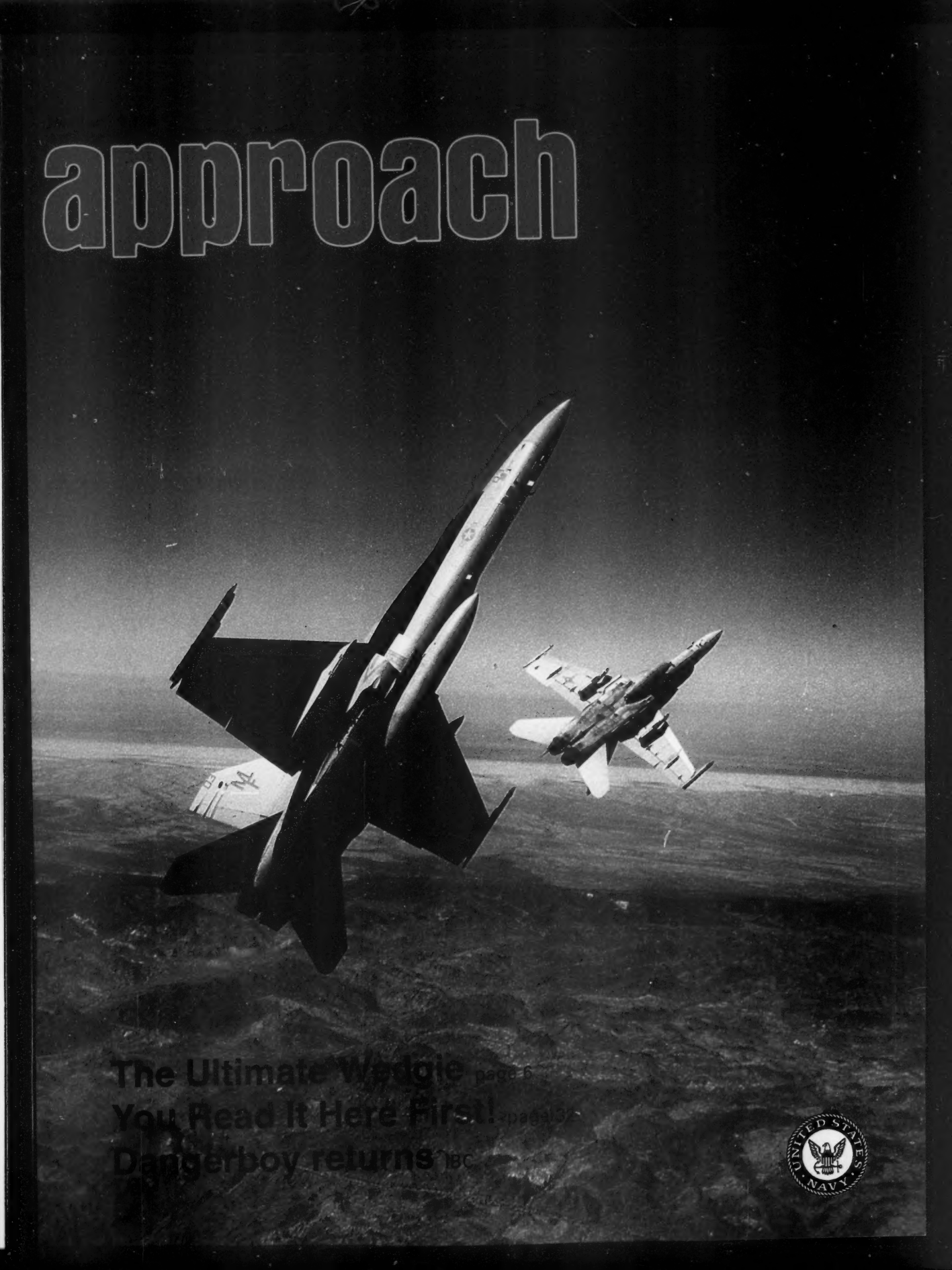
# approach



# Airing One's Dirty Linen...

When is an article too controversial to print? Some heated discussions about that topic have swirled around the *Approach* editorial desk lately. One of the dilemmas we face is whether or not to print articles that may make a command or an individual look bad - or worse yet, get them in trouble. Articles about bad headwork, minor flight violations or bending the rules are just a few examples. Since those articles tend to have important lessons and make for good reading, we publish them.

For example, we recently received a submission detailing a crew's decision to take a marginal plane flying. After getting airborne, they turned on the faulty system to "troubleshoot." It promptly malfunctioned. They turned it off before any damage occurred.

At first read, the article seemed innocuous. But, because the faulty system had been the cause of several Class A mishaps, some people felt it was embarrassing that their aviators would admit to such an obvious lack of judgment.

We didn't publish the article.

There are others who think printing such stories sets a bad example (especially when there isn't a mishap) because the authors got away with their misdeeds. Worse yet, they think our readers interpret publication as our condoning the misdeeds of the authors, in spite of the authors' standard *mea culpa* at the end of the story. Some even fear our junior aviators will try to emulate the perpetrators. Sort of a "Hey, they got away with it" mentality. We believe most aviators are smarter than that — although some mishap reports don't support that theory.

One suggestion was to add editorial comments reiterating the authors' mistakes to ensure the reader gets the point. The problem with that is we don't want to chastise an author who takes the time and energy to write an article.

Should we write and publish articles about errors, no matter how bad or embarrassing? Even though some arguments against publishing such stories are valid, human error continues to be the largest contributor to the mishap rate. Sharing that experience appears to be the best way to promote vigorous ready room discussions.

Lt. Steven Halsted

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## DEPARTMENTS



**On the cover:** F/A-18As of VMFA-134
Photo by Robert L. Lawson



RAdm. A.A. Granuzzo, Commander, Naval Safety Center
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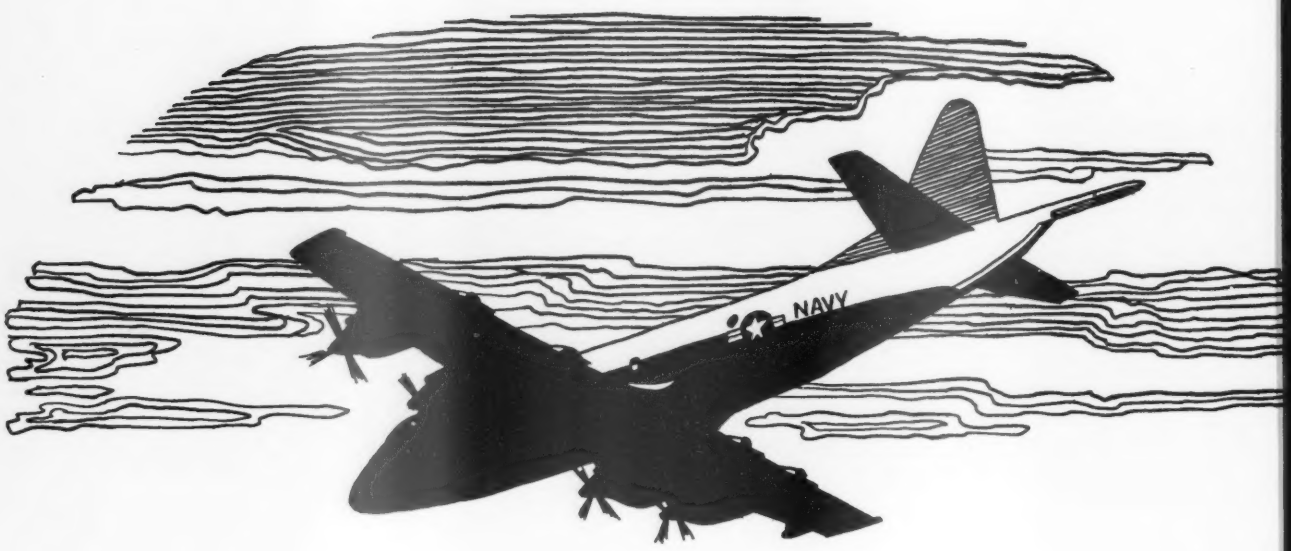
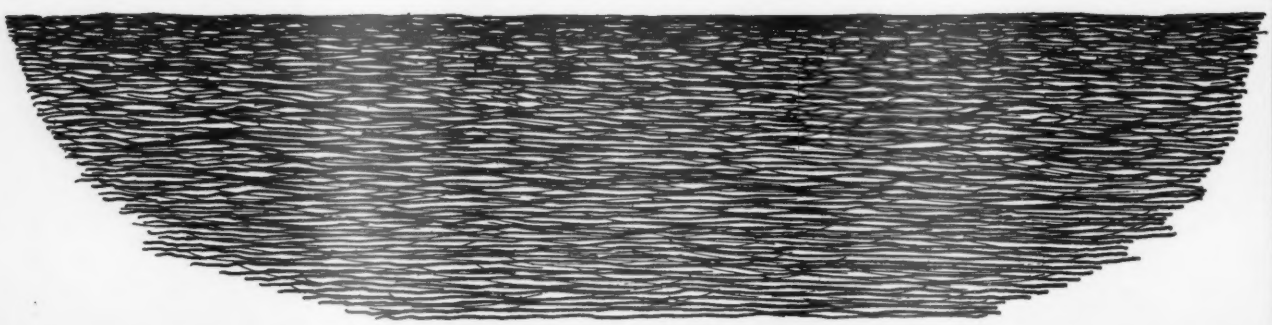



# To Sleep, Perchance to CRASH!



By LCdr. J.J. Romano

It was zero-dark-thirty somewhere over the Indian Ocean, a thousand miles from nowhere. There was no moon, but there were a billion stars. We were seven hours into a 12-hour mission, conducting surface surveillance ops. We had been flying around the clock for the last few days with minimum crew rest. The entire crew was dragging and performance was less than 100 percent.

We were steadied out at 180 knots, 2,500 feet, with one engine shut down for maximum endurance. My copilot was monitoring the autopilot, and the flight engineer was doing his fuel log. We were so tired that we hadn't said anything for the last 15 minutes.

I sat there with my bloodshot eyes half open, fighting the overwhelming urge to nod out. I glanced down at my airspeed indicator, which was now reading about five knots fast. I mumbled to my copilot, "Watch your airspeed." We still had a couple of hours left on station, and I was trying to squeeze as much time as possible out of a drop of gas. My eyelids were heavy and my vision was periodically blurred. It was going to be another long night.

I returned to stargazing for a few moments and then looked back inside, only to see my airspeed still increasing through 187 knots. In a more demanding voice, I told my copilot, "Pull the power back and watch your airspeed!" I was growing annoyed with him at this point since he didn't appear to have the same concern about our fuel as I did.

As my annoyance grew, so did my impatience. I finally grabbed the power levers and squeaked off some power. We were approaching 190 knots. But something was odd. I had just reduced power and airspeed was still increasing! I finally broke my fixation with the airspeed indicator and realized we were in a 500-fpm rate of descent and passing through 1,700 feet! Somehow we had just lost 800 feet and I had no idea how to account for it.

Now, semi-awake and very confused, I turned to my copilot to ask what was going on. Much to my amazement, he was sound asleep with his head buried in his chest. His right hand was still dutifully holding the yoke where he had inadvertently disengaged the autopilot and started our slow descent. In disbelief, I turned to the flight engineer, who sat there fully reclined, mouth wide open, also in a deep sleep, with his fuel log still on his lap. I took a few moments to fully absorb the impact of the situation and the impending disaster.

Here I was in a three-man cockpit with two guys sound asleep, another half-awake and an aircraft in a slow, pilotless descent, just a few minutes away from going into the water. In a loud voice, I asked my copilot to "Get back on altitude!" He promptly awoke and, in shocked disbelief, pulled up the nose and cobbed on the power.

**Fatigue** can be as dangerous as drugs or alcohol.

The flight engineer also woke up and was equally stunned by our deteriorating situation. We raised the cockpit lighting, took turns getting out of our seats to stretch, went on 100 percent oxygen, and called back aft for some fresh coffee.

Fatigue can be as dangerous as drugs or alcohol. You think you can resist it, but sometimes it overwhelms you. It strikes slowly and its effects can be devastating, impairing judgment and degrading performance.

There have been many a dawn patrol where we all have nodded out for what we thought were a few seconds, only to awaken and realize it had been a few minutes. Had I succumbed to nodding out for a few minutes in this situation, I would not be here today.

If you're tired, take a break. And if you're being pushed too hard, tell somebody! Your aircraft and crew depend on it. ➤

LCdr. Romano is now an insomniac, flying with VP-64.


PH3 John K. Sokolowski

# Is It Up?

# If It's Not Down...

By LCdr. D.B. Thompson

I was mission commander for a 1 v 1 ACM hop, a great chance to show my JO wingman that old Corsair drivers shouldn't be automatically dismissed in the air-to-air arena. We even made a side bet for extra motivation.

As I completed final checks, I asked my wingman about the troubleshooters who were just unplugging from his jet. (Imagine that—a single-seat jet with ICS!) He told me that although the troubleshooters had found a gripe, they had said he was up. I didn't think so. I called Maintenance Control on the "back" radio for clarification.

An acceptable number of moments after replying, "Stand by, sir, I'll check on it", the chief said that the jet was good to go. I shook my head, figured the "tweaks" knew something I didn't (A-7 pilots never needed to understand computers), and called for taxi. I made a mental note (and wrote it on my hand lest I forgot) to ask maintenance for further explanation after the flight.

I guess my wingman got scared, what with all those department head jokes he'd been telling. He decided to abort his takeoff because of some engine caution that came on at about 80 knots. Heck, he had another perfectly good engine, which I never had when I was a JO. But he aborted anyway, and I won all my 1 v 0 engagements without any problems, some without even having to use afterburner.

It turned out the engine caution my wingie had was an erroneous one, but it was related to the "software problem" he had prior to takeoff.

After the flight, I asked Maintenance Control for more information, and learned a few things worth passing along. First, they said the jet was "up" simply because they couldn't find anything that said it was "down." If they had just said, "We don't know," I'd have made them honorary lieutenants and trusted my better judgment that the jet was down for further investigation or troubleshooting.

Second, I shouldn't have just taken their word for it. Whenever you think a jet may be down, it should be, until you have enough information and understanding to intelligently conclude that it is in fact "good to go."

Finally, old Corsair pilots everywhere will be happy to know that single-color briefing-debriefing boards are still legal if it's a 1 v 0. ◄

LCdr. Thompson flies F/A-18s with VFA-151.

# The Master-Arm Was in Practice...

By Lt. Andrew Bilton-Smith

**It was a standard night low-level, ending with a standard straight-path delivery. Although neither of us had flown since the fly-off two weeks before and we were admittedly rusty, everything went fine at first.**

**Our crew coordination first broke down when we made a practice attack along the route and the BN forgot to turn the master-arm switch off. I turned it off, which altered my BN's habit pattern of rotating the master-arm collar to the on position before the actual attack. This breakdown led to a major mistake on a critical bombing run.**

The attack went 4.0. We were on altitude, airspeed and steering, except the master-arm was in practice. The bomb call to the range tower was followed by an amusing (after the fact) comment by my BN of "Master-arm ... aw, shoot!" It's happened to all of us at one time or another: a major faux pas at a critical phase of a flight that distracts all attention from the rest of the mission.

Since our squadron typically wins the community bombing competition, our earlier mistake continued to occupy our minds. Even after the following runs resulted in a couple of bullseyes, we found no relief .

We left the range as a section to RTB for a night FCLP period. Luckily, I was flying wing because my mind wasn't on flying, scan or navigation.

After separating from my lead for individual ACLS approaches, the frightening reality of inattention struck both of us. We had started our descent out of 10,000 feet for 4,000 feet, setting the radar altimeter at 4,500 feet. We flew right through 4,000 feet oblivious to the "deedle deedle" from the radar altimeter. I violently leveled at 3,000 feet asking my BN, "What altitude were we cleared to?"

At the same time, Approach called "501, the minimum vectoring altitude in your sector is 4,000 feet. You were cleared to 4,000 feet!"

I immediately made a 3-G climb to 4,000 feet with the new worry of a flight violation taking a front seat to the blundered bombing run. My BN angrily said, "You know, we could have died all because of this stupid bombing mistake." After clearing the air, the flight continued as briefed.

We learned our lesson inexpensively with only an embarrassing call from Approach and a quick reality check. I brought our experience to a safety AOM as a true confession. I said that as a crew, we must put mistakes behind us and concentrate on the mission ahead, which includes staying alive. ➤

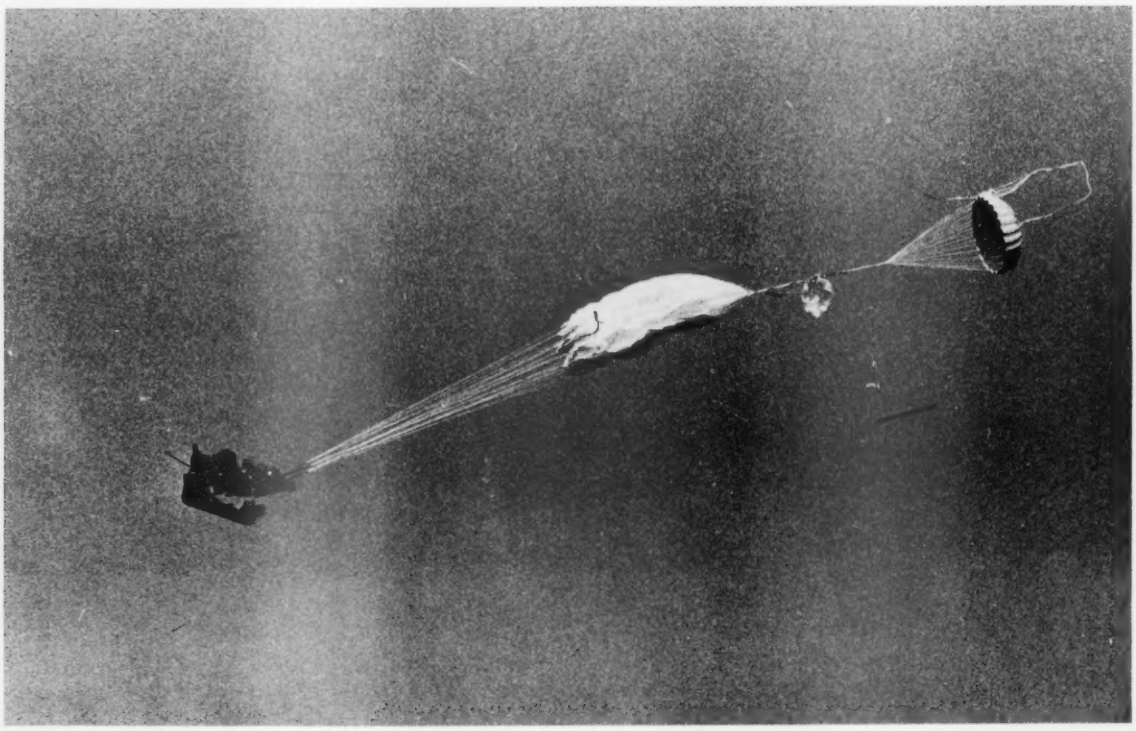
Lt. Bilton-Smith flew A-6s with VA-95. He now flies with VR-61.

# The Ultimate Wedgie

By LCdr. Nicholas L. Webster

Over the past few years, I have worked on many mishaps and talked with people who have ejected. I've found a number of human-factors problems that arise with ejection, the most dangerous of which is delaying the decision to eject.

Most aircrews do not delay ejecting from an aircraft on fire, or with engines that just self-destructed. They delay when they are flying a perfectly good aircraft in an aggressive, controlled manner one second, and it is falling out of the sky the next.



NATOPS says to eject if you haven't regained control by 10,000 feet AGL, or if you lose control below 10,000 feet above terrain and do not immediately regain it.

Several pilots I talked to delayed ejecting because they felt they could save the aircraft even though they were below 10,000 feet AGL. Pilots have died or have had a fireball licking their boots because of that delay. In a number of cases, they were concerned that if they crashed, they would "look bad" or "lose face."

Once you decide to eject, you should follow a number of basic steps, which will lessen the impact of ejection on your body. If the aircraft, time and altitude permit a controlled ejection, the pilot should follow these steps:

1. Pull up and slow to below 250 KIAS to gain altitude and lessen the wind blast.
2. Turn aircraft away from populated areas.
3. Lock your harness.
4. Ensure your visor is down and mask on. (Your mask does more than your chin strap to secure your helmet.
5. Tilt your head 10 degrees chin up to decrease the risk of neck injury.
6. Keep your back straight with hips against the backrest to decrease lower back injury.
7. Keep your thighs flat on the seat pan to reduce seat slap and decrease the chance of fractured femurs.
8. Eject using handle recommended by NATOPS. Keep your elbows in to reduce the risk of flail injuries.

**Remember: it is better to eject with bad body position than to hit the ground still in your aircraft.**

Once the seat leaves the aircraft, it's time to get set for your parachute. Know your particular seat's sequence. Most manufacturers of newer ejection seats recommend allowing the seat to work "automatically," free falling in the seat, drogue stabilized, through the higher altitudes where cold temperatures and weather could make a slow parachute descent dangerous and uncomfortable. If you know you are below barostatic opening altitude or you are at low altitude and not in the chute, it may be time to override the automatic systems. The time from when you eject to when the seat separates is generally fairly quick.

At low altitudes, if you have time to think about "beating the seat" and you're still in your seat, you should use the emergency restraint-release handle to separate from the seat. You may have time to pull your ripcord following manual seat-man separation because of deactivation of the automatic parachute-arming lanyard in some aircraft. If you are over high, mountainous terrain, you may have to pull your ripcord to open the chute before hitting the side of a 14,000-foot peak.

So, you're in the air, out of your seat, and your parachute has just given you the ultimate wedgy (opening shock), what now? Look up and check the chute, correct any line-overs, tangled risers, then review your IROK procedures. I have talked to a few pilots who after ejection kept saying, "IROK," but had to think for a few seconds to figure out what to do. Here is a reminder:

**I** inspect parachute and inflate LPU.

**R**: release seat pan to open up raft. Do not release your seat pan during over-land ejection. You will end up with a lot of line below you, which will try to tangle you in every tree, bush or power line within five miles.

**O**: options. If time allows, do the following: visor up, mask or $0_2$ hose off to prevent suffocation, gloves off to help with feel, LPU lobes fastened, use four-line release or steering lines if available. If time permits, it is a good idea to steer your chute away from dangerous landing areas like trees and power lines.

**K**: Koch fittings. Find them but do not open covers until your feet hit the ground or water. By the way, your SEAWARS is a backup and will not blow off your fingers.

If you are at high altitude, you have had time to do your IROK, but at low altitude, try to remember to get your body ready for your PLF. Feet together, knees slightly bent, toes pointed, eyes on the horizon, locate your koch fittings and roll when you hit the ground. If landing in trees, place your hand under your armpits to protect those big blood vessels and turn your head so you don't loose your face.

You're now on the ground in one piece, what to do next? If you are not in danger from fire, smoke, plants, animals, or the enemy, and if you have released your parachute, it's time to stop, lie still and assess your situation. You have a gallon of adrenaline flowing through you, and it's time to see if anything is broken before you get up and move around. Minimize activity, if able, to prevent more injuries. You could have non-displaced fractures that could cause problems. You may not feel them right away because of all the adrenaline in your system. When the emergency-response team arrives, they should immobilize you on a spine board to protect you from further injury. Let them do their jobs. ◀

*Thanks to LCdr. Chuck Sheldon, Director of Aviation Survival Training, NAS Patuxent River for helping with this article. For more information, contact him at DSN 826-1516 or the author at DSN 826-4441/1414.*

LCdr. Webster is the flight surgeon for NAWC-AD, Strike Aircraft Test Directorate, NAS Patuxent River.

*After reading a thousand* Approach *articles, the staff here gets a bit jaded. We imagine that we've seen it all—the poor headwork, the "it can't happen to me" attitude, and the unexpected event. Then along comes an article like the one that follows, and we are left rolling our eyes, shaking our heads, and not knowing whether to laugh or cry.*

*As you read this narrative, keep in mind that it doesn't take place back in the wild-and-wooly 1950s, the days of kick-the-tires-and-light-the-fires, when the mishap rate was astronomical and boys were boys. These events are still happening.*

*There will be a quiz at the end.—Ed.*

# Cold Water, Cold Cots, Cold Food...

## We're Outta Here!

I'd heard of get-home-itis, but I didn't think I had ever had it. I *did* have a case of get-outa-here-itis, though. We were on det one cold day in beautiful Norway. Late one afternoon, my young, trusting BN and I launched in our A-6 for what was supposed to be a good-deal CAS mission—a low-level, glacier-hugging airfield attack (and an air show for the troops). We also wanted to get home.

I should have known it was going to be a bad day when I put my foot right through the bottom of my dry suit.

After dragging my wingman around in the goo for an hour, trying to talk to a FAC, we got a report from the ship: the weather was too bad to unload the FACs at the target. Why hadn't they told us that before we took off? We took a quick swag at calculating fuel and figured that we still had enough to do the low-level and shoot the glacier gap.

At first, I was a little upset when the senior mission commander on my wing usurped my authority as lead and called back to base to check the weather. What was the weather? There was none! The base was closed because too much snow had accumulated. In one-and-a-half hours, they had gotten two feet of snow! My wingman's BN must have been smarter than we thought.

We checked our brief divert information—long runway, gear and fuel. Even the weather was good. That took care of the jet, but what about creature comforts?

After we landed , it became instantly clear there were none. There was no hot water, no indoor toilets, no roof other than canvas, no mattresses, and no open chow hall, Things were getting bad.

After a cold, restless night, a dehydrated beef-patty MRE, and no shave or shower, we awoke the next morning to find our Intruders sleeping under two feet of fresh, wet snow. Two truckloads of deicer later, we could see that the deicer was OK for turning white snow fluorescent green. Armed with the latest in deicing technology (brooms and shovels), we attacked the problem with pure muscle. There was no time to run back to the base operations trailer to get our helmets. I doubt that they would have fit over our watch caps, anyway. Our priority was keeping warm, not safe.

Four hours and three falls later, including a half-gainer from the horizontal stab by my wingman, we were ready to go. The day's highlight came when we commandeered a tractor to do doughnuts out on the flight line. We almost flipped it.

About an hour before we piled into our aircraft, snow started falling again. Like clockwork, my wingman's aircraft went down on startup. With two inches of new snow on our wings, my wingman trudged inside to call the skipper to see if it was OK to go home by ourselves.

The CO must have been in rare tune with his JOs. He made a well-educated decision to relieve our misery and send us home without proper adult supervision.

The only problem was that the OK to launch came 20 minutes and four inches of snow later. My BN had already proven that he had no apparent fear of death and that he also appreciated the risks associated with attaining the finer things in life like heat, hot water, food and a bed. These risks involved the fact that the weather was below minimums, the snow on our canopy and wings was so deep that we couldn't see out the top of our windscreen, and that the taxiway was obscured by deep, blowing snow. I wished we had windshield wipers like the S-3.

After sitting in wet underwear for half an hour, and looking closely at our other option of spending another night at our divert, we figured it would take a little creative brainwork to solve these minor problems and go home.

We convinced each other that weather minimums must apply only in CONUS, and there was no way that we were planning on coming back here to land. Besides, we reasoned that the skipper had already sent us a strong signal that he wanted his plane back ASAP. We figured that the snow on the wings would blow off by 150 knots and that the A-6 was a manly, all-weather airframe that could stand up to a little of this fluffy white stuff.

To navigate to the hold-short, we unstrapped, stood up and brushed the snow off the front quarter-panel, left the canopy open, and looked out the sides. I told my BN how far away we were from my snow bank, and he told me how far away we were from his. I love it when crew coordination works! We asked the tower-tent folks to turn on the taxiway lights, only to find out that they were already on... but buried by the snow.

Finally, we were sitting in the hold-short with six inches of snow on our wings, and I could see about a thousand feet, or two runway lights ahead. We were ready to go—except that we had forgotten to brief.

"There's no way," I told my BN, " the brakes are going to hold this beast, so as I put the power up, I'm going to concentrate on staying on the runway. Your job is to check out the engine instruments. Passing 150 knots, look out the window and see if there is any snow on the wings. If there is, yell 'Abort!' and grab the hook because there's no way we're stopping this pig without it.

"If we go off the runway, I plan on riding this thunder sled until it stops. You can do what you want, but try to meet me at the plane so we can get our story straight. Any questions?"

I analyzed our situation one last time. There was a foot of snow on the runway, and six inches on the plane. I was soaking wet, hungry, tired, I needed a shave, my mouth tasted like chalk, and I stank. There was absolutely no way... ◀

*We'll leave our intrepid aviators there on the runway, snow falling, engines spooling, brains calculating at a mile a minute. Here's the quiz:*

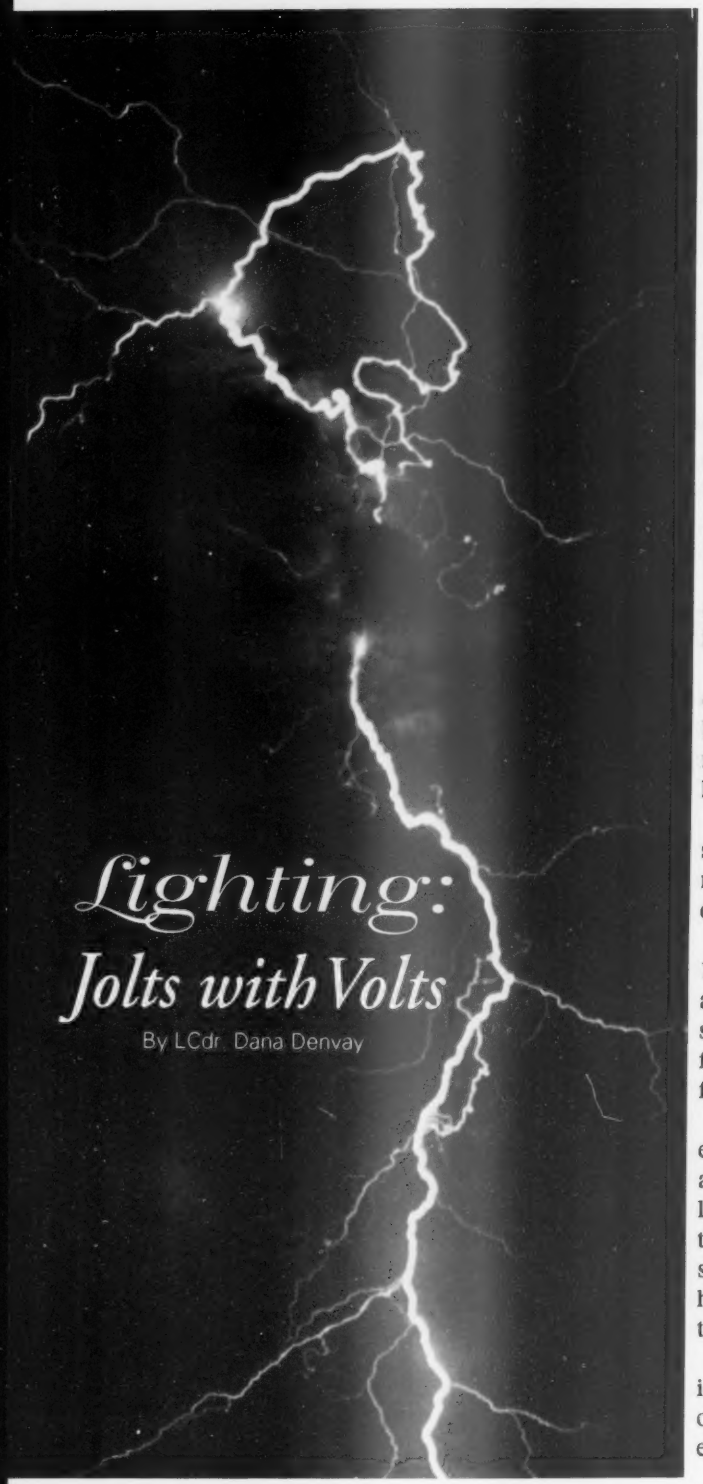
*•Did they launch?*

*•If not, why not?*

*•If they launched, what happened? What should have happened?*

**Extra credit: How many NATOPS violations can you count?*

*Send your answer to the editor, or give us a call.—Ed.*



# Lighting: Jolts with Volts

By LCdr. Dana Denvay

The sky was overcast as we manned up for an AIC hop with another Tomcat. Area weather forecasts and PIREPs were favorable, so my pilot and I had decided to launch. Clouds were layered at 3,000 and 6,000 feet, with a milky haze at our altitude of 15,000 feet. Scanning the working area with the Tomcat's air-to-air radar revealed two thunderstorms off to the right at 30 miles.

"Only four miles until we're out of this milk bowl," I reported, continuing with my weapons checks.

As I reached to my left to adjust UHF volume, the entire cockpit filled with light. A foot-long electric discharge arced from the instrument console by my knee, battering my left hand.

I felt as though I had put my finger in a light socket. My first thought was that we had suffered a catastrophic electrical failure. I concentrated on securing non-essential equipment. Cockpit indications, however, were normal. At this point, it struck me that we may have been hit by lightning.

Confirming my suspicion, the pilot said he saw a bolt of lightning hit the aircraft. He also noted a tingling in his hands.

We put the needle on the nose and declared an emergency. A survey of all systems turned up no problems; even the radar was working 4.0. Thinking that it might attract another bolt, I secured the AWG-9. This all happened in a matter of seconds.

We took a GCI approach and landed. My left arm was still tingling and a felt little sore. I grudgingly reported to medical for a checkup. An hour and a hundred wires and electrodes later, the flight surgeon said I was OK.

An *Approach* article by LCdr. Michael Neal (April 1991) on triggered lightning reported evidence that aircraft moving through an air mass can trigger a lightning strike. This phenomenon generally occurs within 5,000 feet of the freezing level. The day of our strike, the freezing level was 14,800 feet.

Post-flight inspection showed that the lightning entered the airplane just forward of my rearview mirror and exited through the turtleback. Ironically, reports of lightning strikes tend to focus on the aircraft damage or the difficulty of flying through IMC with degraded systems. In this case, the aircraft was spared, but we could have easily gotten injured or incapacitated. I was relieved to hear my pilot's voice.

My respect for thunderstorms has significantly increased. I also want to make sure that we get the word out to avoid the freezing level if you have to fly near an electrical storm. It may save your life. ◀

LCdr. Dervay is an instructor RIO with VF-101. At the time of this story, he was with VF-103.

# SSC Becomes SAR

By Lt. Ira Saligman, Lt. Kenneth Vales, Lt. John Weber and AW1 John Smith

We launched for an early morning SSC mission during our det to Key West. About 10 miles out from our first contact the radar operator said that a second contact had just popped up. At three miles we saw it. At first, it looked like a wind surfer, but as we flew over, we realized it was actually a 30-foot sailboat. Several people were holding up what was left of the sail, clearly marked with "SOS" in bright red letters. We had just become on-scene commander for a real SAR.

Fortunately, we had briefed SAR on deck, which helped prepare us for our new mission. First, we established a bingo to be ensure that we didn't become the subject of the next SAR effort. Then we set out to help the survivors and coordinate the rescue.

Since the S-3B is not equipped to drop food or water, the best way we could help was to let the survivors know they had been found and that help was on the way. This knowledge can be better than food. After several low passes and a lot of wing rocking, the boat crew seemed considerably more at ease. Some returned to bailing while others sat down to rest.

Lt. Steve Whitaker

Our next job was to coordinate a rescue more than 100 miles from the nearest land. It would be a difficult task, and it must be done right the first time. The people in the disabled sailboat were depending on us.

We contacted a Coast Guard cutter about 130 miles away. We explained the situation and said we were going to try to hail a merchant. This covered us and the distressed vessel in case we went NORDO or had to RTB. A recent aircraft mod gave us a VHF radio. The radio, however, was useless without a good frequency. We had some emergency frequencies for VHF, UHF and HF. We tried to hail a merchant ship we spotted five miles south of the distressed vessel on channel 16 (ship-to-ship emergency). They agreed to assist the damaged ship and said they had changed their heading. They were bound by international law of the sea to provide assistance.

Our relief was short-lived, however, as the merchant continued tracking away from the sailboat. After a few more radio calls we realized that we were not talking to that ship, but to another. (There was a one-letter difference in the name.)

Flying another low pass by the distressed vessel, it was obvious they still thought help was on the way. We located another merchant about 15 miles north of the sailboat. Again, we tried the VHF and several fly-bys. Our call was finally answered in broken English. Although communication was difficult, we realized we were successful when the merchant turned toward the sailboat.

We spent the next hour watching the distressed vessel, now somewhat lower in the water. The tension mounted; we hoped that the merchant would pick up the survivors before we hit bingo fuel. Finally the ship made her approach. We had done everything we could.

One thing I have never seen discussed in any of the pubs on SAR is the high emotions involved in a rescue. I could imagine how much stronger it would have been had there been a fellow aviator down there. Emotions are the single most unplanned-for factor that will cause you to drop below your bingo!

With no more help to offer, we made one last fly-by. We passed the sinking vessel, and I noticed two things. First, was all the happy faces and waves of thanks on the little sailboat. Second, and more important, was the fuel needles hitting my bingo fuel. I went to mil, pulled the stick back and put the needle on the nose.

After returning home, we found out that the sailboat had been taking on water, and the people onboard were almost too tired to bail. There were 32 people on the boat—22 adults and 10 children. They had drifted for eight days with no food or water. Thirteen ships had passed them, but apparently had not seen the sailboat. ◀

Here are some frequencies to keep handy for a SAR.

- Ship's common UHF:
  **277.8, VHF 156.8 (Button 16)**
- Guard:
  **UHF 243.0, VHF 122.5, HF 2182, FM 40.5**

This four-man crew flies with VS-32.

# Hard Hornet Tires

By Lt. C.W. Yager

Peter Mersky

My lead and I briefed our cross-country flight to our detachment destination, with two stops along the way for gas. We had just completed refresher CQ, and while the rest of the squadron was now on the ship, we were given good-deal hops to ferry planes ahead for an Orange Air detachment.

The weather at our first stop was forecast for 5,000 scattered, 15,000, broken with three miles visibility in rain and fog. Our alternate called for 3,000 broken and 2 3/4 miles visibility in light rain.

During preflight, we noticed that the tires were still carrier pressurized. Most of our maintenance personnel were still on the ship. Although the equipment to release and measure the tire pressure was not available, the maintenance personnel at our final destination would be able to de-pressurize the tires.

En route to our first stop, ATIS was calling the field 5,000 scattered, with two miles visibility in rain and fog. We descended in section, via vectors, to 4,000 feet, where we split up for individual PARs.

Since this was a short flight, I was fat on gas and dumped down to 6,000 pounds. With my tires at carrier pressure and the runway wet, I wanted to be below max trap weight to allow myself a normal descent rate, while at the same time allowing for plenty of gas should we need to divert.

I flew an auto-throttles GCA, breaking out at 650 feet AGL. Just as I broke out, I heard a call that the braking action was good. At approximately one-half mile, I broke out of auto to give myself the ability to pull power off as I touched down and began decelerating as soon as possible. I landed with the power back and the nose slightly high, which resulted in a slight flare.

I let the plane establish itself on the runway and begin tracking normally before applying full aft stick and stepping on the brakes. As I did so, I saw the 6-board approaching and my airspeed at 105 knots. The brakes seemed to be having little, if any, effect. I was able to depress them fairly easily all the way to the floor without much of a result. I figured that the Hornet's anti-skid system was working; if hydroplaning is detected, the system will not let the brakes kick in until three seconds after they are applied. However, approaching the 4-board, I was still at 95 knots, with a feeling that the plane was not going to slow down.

I thought, "I'll try the emergency brake, and if that doesn't work, I'll go around." I knew that if I still had 80 knots at the 3-board, I would be able to get airborne again. I released the brakes, pulled the emergency brake handle, and re-applied the brakes. Nothing seemed to happen. I decided to try once more, this time a little harder, and if it didn't work I'd take it around. That was when my right main mount blew out.

The plane immediately cocked 45 degrees to the right. Now a go-around was no longer possible. I would go off the runway before I got airborne.

I passed the 3-board heading off to the right side of the runway. I put my hook down in the hope that if I did get back to the proper direction of travel, I would be able to take the long-field gear, which was 1,200 feet from the end of the runway. At this time, with the brake pressure even but hard, the aircraft began a right 360-degree hydroplaning spin. It wasn't like a spin you might experience in a car, but a slower rotation. Actually, it felt like two 180-degree turns, with about a second between them when I was actually traveling backward. The plane stopped its hydroplaning spin, moving in much the same direction as when it started, veering off the right side of the runway.

By now, I was depressing the pedals for all I was worth. I thought the aircraft might leave the runway, but as it approached the side, it cocked back to the left and came to rest with the right mainmount about a foot off the runway and buried about four inches in the ground. The crash crew was there immediately, and after they chocked the wheels, I shut down.

The field-support personnel were able to get the plane off the runway and into a hangar. Luckily, there was no damage to the aircraft other than the two blown tires. A Marine squadron on detachment took care of the gear and got the aircraft ready to fly by the next morning. Except for my pride, I, too, was undamaged.

What can we learn from this event? First, I'm sure that had we tried, we probably could have found the proper equipment to de-pressurize our tires before we manned up.

**Now a go-around was no longer possible. I would go off the runway before I got airborne.**

Second, I dumped down to 6,000 pounds. The divert for which we had filed called for 3,000 pounds to get us on deck with 1,500 pounds. Like most Hornet pilots, though, I was reluctant to dump the often-precious gas. Had I dumped more fuel I would obviously have been lighter. I would have had a slower approach speed and less momentum going down the runway.

I landed a little slow with the power coming back. I flared, rather than landing with a normal carrier rate-of-descent, which would have dissipated the energy much more.

I also should have been more patient with the normal brakes. Chances are, they were working correctly but did not feel like it because of the carrier-pressurized tires and wet runway. With the Hornet's anti-skid system, I should have expected the feeling that I wasn't slowing down normally.

Fourth, I should not have used the emergency brakes. If at 95 knots at the 4-board I didn't feel that I was slowing down, I should have been patient. If the brakes were not working correctly, I should have gone around and tried again or trapped. I could have stayed VFR and flown several more approaches. Pulling the emergency brakes at high speed on a wet runway guarantees a blown tire.

Putting the hook down was probably not a good idea. If I had tracked back onto the runway, I would have had plenty of time to get the hook down. As it was, it could have caught something else and damaged the aircraft. ◄

Lt. Yager flies with VFA-192.

# Too Junior?

By Lt. David J. Fedorchak

...“if he doesn’t have a problem taking this airplane, why should I?”

I had been in my first fleet squadron for only a few months when I found myself in the middle of workups for our WESTPAC-Arabian Gulf cruise. Having completed our Fallon det, I felt comfortable flying in the airplane and working with other squadrons in the wing.

We were now doing ITA/ATA off the coast of southern California, and the det was winding down. Tonight's flight was a no-brainer tanker hop, and although the weather was mediocre, it was not the worst we had seen. For some reason, I was flying with a different pilot, but that was OK because my new pilot was an experienced O-4 with more than 2,000 A-6 hours.

We strapped in and started up without any problems, but one of the generators soon started to act up. Just as the launch was winding down, we seemed to have the generator fixed. As the deck crew broke us down and we taxied toward the cat, the generator fell off line again. I assumed that the pilot was trying a reset, but as a I continued with the takeoff checks, I noticed that he hadn't said or done anything about the generator.

"Are we going to do anything about the generator?" I asked.

"We'll get it airborne," he replied.

The rest of the flight was uneventful (except for the single generator), and the weather above the cloud layer was clear with a full moon. Fortunately, we didn't have any other problems and we managed to avoid a hit on our sortie-completion rate. A few things did bother me, though.

First, we had a breakdown in crew communication. Instead of discussing our comfort level with the situation, one crewmember had already made the decision. I always thought that I would never be intimated by how much experience my pilot had. Instead, I found that I was too ready to accept his decision just because of his flight time.

"After all," I thought, "if he doesn't have a problem taking this airplane, why should I?"

The SOP and preflight brief exist for a reason. If you brief a flight one way, conduct the flight "as briefed." We shouldn't let anything, especially sortie-completion rate, make a go-no-go decision for us. ◀

Lt. Fedorchak flies with VA-165.

*You should brief go-no-go criteria before you walk to the aircraft. Once the brief is over, the dynamics of manning up, preceived operational pressure, the I-can-hack-it attitude and the launch sequence tend to influence aircrew and make them continue the mission instead of aborting for known discrepancies. There should be no doubt as to what either crewman will or will not accept based on experience and squadron and wing SOP.—Ed.*

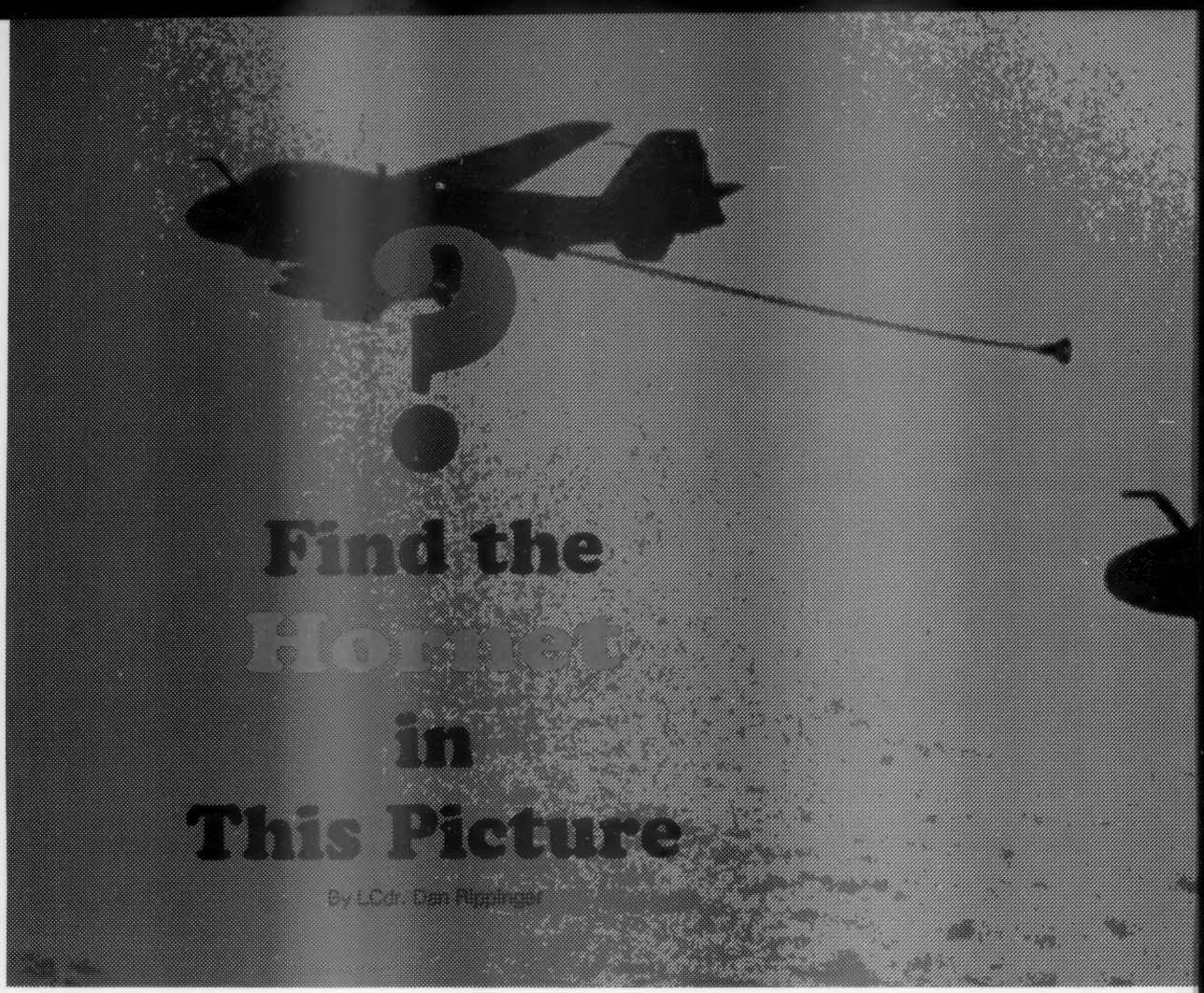
## Navy and Marine Corps Team Up

**Attention Marines!** On October1, 1993, the Marine Corps Safety Division joined the Naval Safety Center. This newest Navy-Marine Corps team will increase our ability develop safety policies and direction for the Marine Corps and all joint operations.

Although *Approach* has always included marine aviation, we need your help to increase Marine participation every month. To help us accomplish that goal, we challenge Marine aviators and aircrews to join the team and contribute articles and ideas for publication.

Photos and poster ideas are also needed. We'll give you a credit line and send you extra copies for friends and relatives.

We edit all articles for style, grammar and technical accuracy, so don't worry if you're not the greatest writer (although great writers are encouraged to contribute). Simply send your submission to Code 71, Naval Safety Center, 375 A St., Norfolk, VA 23511-4399. For more information call Capt. Kevin Emory or GySgt. Bob Morrison at DSN 564-6648, Commercial (804) 444-6648.



# Find the Hornet in This Picture

By LCdr. Dan Rippinger

Having been in this business for several years, I thought I had seen or heard just about every method of how "they" can kill you—until now, that is.

This episode began as an overhead-tanker mission on a "varsity" dark night at the ship. Following the cat shot and the obligatory checks with Strike, we switched to button seven and started our search for a rendezvous with the off-going tanker. After an expeditious tally, we started the rendezvous on our squadron playmate. Our concentration was broken by a Hornet pilot's request for opportunity fuel. We told him to join on us and that he would receive his gas following consolidation.

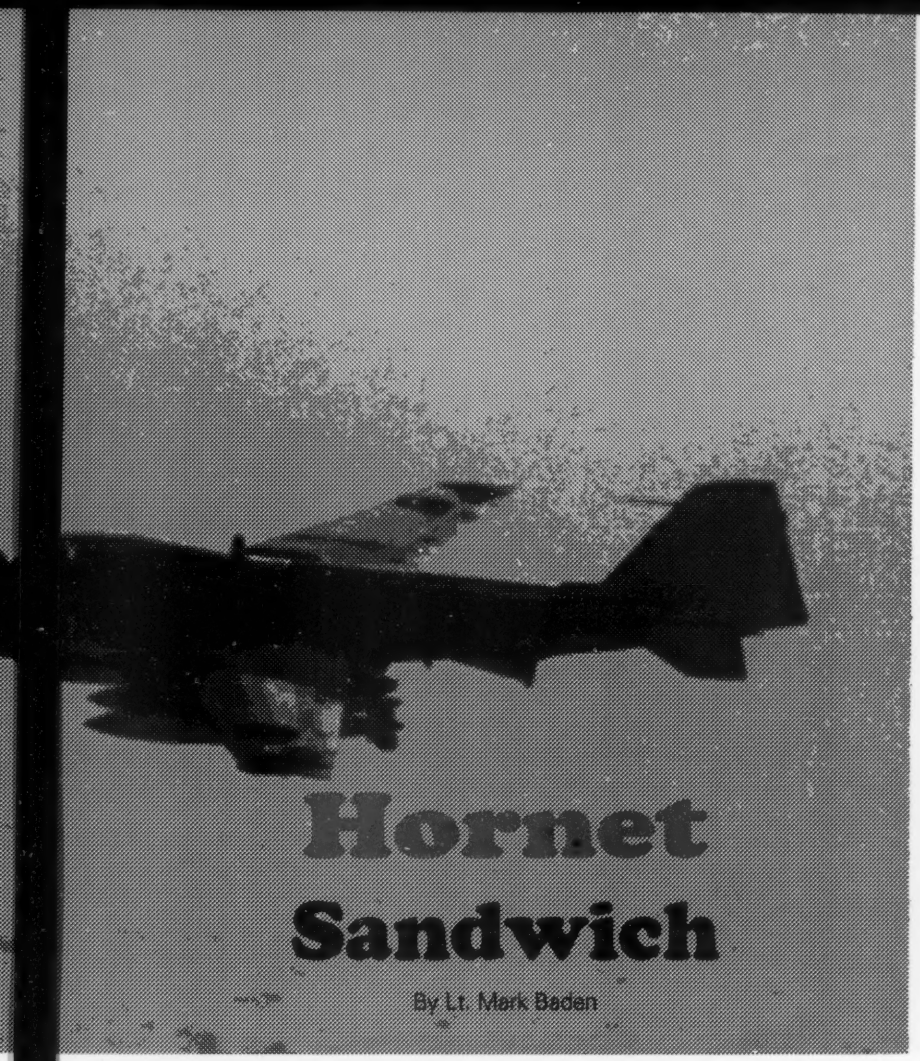
I could see the off-going tanker. I told my pilot I also had a tally on an F/A-18 moving from our four o'clock to what appeared to be a trail position. We assumed (yeah, I know) the Hornet would remain in trail until we completed out tanker checks.

We were just about to complete our textbook rendezvous when the lead tanker requested the Hornet's position. The F/A-18 driver responded, "I'm joined on a tanker's wing, but I don't know which one." We were now within 200 yards of the lead tanker with no Hornet in sight. Four sets of panicked eyeballs searched for the phantom Hornet.

Within a few seconds the lead tanker pilot called over the UHF, "Stop your rendezvous. He is on my left wing with no lights on!"

A few seconds, of disbelief later, we saw the barely distinguishable F/A-18 silhouette in the dark. The pilot of the stealth Hornet did not realize his midnight condition. The strobes I had seen earlier were those of a departing F/A-18. If our lead hadn't stopped the rendezvous, we would have ended in a Hornet sandwich with an AMB wondering how three perfectly good airplanes collided in a controlled environment. ➤

LCdr. Rippinger was a BN with VA-95 at the time of this story. He is currently assigned to BUPERS.



# Hornet Sandwich

By Lt. Mark Baden

I was watching the oncoming tanker rendezvous. I was also wondering what had happened to the Hornet pilot who had called five minutes earlier looking for gas. The Hornets had been having trouble finding the tankers throughout the workups, but still, this was slow, even by those standards.

My BN called the rendezvous tanker and told them to be looking for the Hornet. We could see at least 10 aircraft within five or six miles of the ship, and we were trying to guess which set of lights belonged to our misplaced F/A-18.

The oncoming tanker crew said they had one set of lights outside our circle that appeared to be on our altitude. There was another set that seemed to be in trail on the first set. We rogered and kept looking.

"I'm on one of the A-6s' wings," the Hornet pilot volunteered.

His call made me bolt upright.

"You've got him on your side!" I yelled to my BN.

I couldn't see anything but the oncoming tanker, which was about 700 or 800 feet away.

I concentrated on the area inside the other tanker. The Hornet had to be somewhere close, and I wanted to know where he *was*.

The other tanker was walking his wings to stay on bearing line. There was no way that anyone was hanging on his wing, which left only one place for the F/A-18 to be. I squinted into the darkness down my wing line, trying to focus on something—anything—in the void. All I saw was the steady sweep of the green anti-collision light of the other tanker.

Something flickered between us. As the green light swept back, I saw it again. This time, I could make out a partial silhouette. The Hornet! He was on my wing with no lights, and the other tanker was bearing down on him.

I blurted out a warning to the other tanker.

"Oh, I must have bumped the switch," the Hornet pilot replied, just before his plane lit up like a Christmas tree. The other tanker pulled away to the inside.

There was no collision, no yellow-orange flashes, and no ejection, and everyone lived happily ever after. The Hornet even got his gas... this time. ◀

Lt. Baden was with VA-95 at the time of this story. He is currently an instructor pilot with VT-7.

# My Jet,


# My Responsibility

By Lt. J.M. Cain

It was a good-deal hop. That's how they seem to start, though—those hops that end in disaster or death. I never thought I could make such a catastrophic mistake as bombing the wrong target. There were two nuclear bulls separated by five miles—one to the north, one to the south. The northern bull was our target; the same target it always was, the same target that we had just bombed five minutes earlier.

We briefed Monday morning at 0700 for a 0915 launch. We were Dash 2 in a three-plane for air-to-ground bombing. Since the Tomcat started dropping bombs, I had made about 10 of these sorties. I was a senior RIO in my squadron with plenty of cruise experience, and I felt comfortable flying with a new pilot since both of us had completed our squadron's air-to-ground syllabus.

After takeoff, join-up, and flight to the range, we went through our weapons checks. We were to separate as singles for two low and two high pops before rejoining for section work. The low pops went like clockwork; our jet released two bombs which fell within 75 feet of the target. I was getting used to talking my pilot through the maneuver, but I was having difficulty maintaining my scan both inside and outside the cockpit.

The high pop was next, the most potentially disorienting maneuver of the sortie. This should have cued me to be extra cautious, but the success of the last two runs led me to forget a few things. We would start the pop with a climbing 30-degree right turn, 55-degrees nose up, followed by a roll left and pull to the target. Our maximum altitude was to be 12,000 feet, and we were to drop at 7,000 feet.

As we began the maneuver, I was concentrating on the climb angle and altitude gain. Our run-in heading before the pop was 109, and the other bull was to the south.

After the climbing turn, our heading should have been no more than 140. The climb felt normal, but we continued the turn through the nose-high pull as opposed to steadying after 30 degrees of turn. By the time we initiated the roll to the left to acquire the target, our heading was 170, a full 30 degrees beyond what we expected. My pilot zeroed in on the first bull he saw, the southern one, and our roll to the left continued until it became a tuck-under aileron roll with our nose pointing 170.

My delivery parameter calls from the rear cockpit matched what my pilot saw from his HUD cues, and at the mark, we released the weapon.

When I looked up for the first time since the start of the pop, I saw the wrong target filling the windscreen and an F-15 2,000 feet below us pulling off from his run. By this time, my pilot realized the mistake, and we made an aggressive correction back to our own target area. The Eagle pilot saw our correction but didn't need to take any action. We confessed our mistake to the target-area coordinator and returned to base. Once on deck, we were relieved to discover there was no one near the target.

Although no one was hurt, the flight could have easily ended in disaster. No matter how familiar a RIO is with his job, complacency in the cockpit can have deadly results. Whether you're dropping Mk-76s or Mk-84s, you should never forget that you are slinging heavy steel and explosives at the ground. Maintaining a good scan both inside and outside the cockpit is essential for situational awareness. I was lucky. My pilot was skilled enough to hit what he was aiming for (a deserted bull), and the ordnance we were dropping was inert with no fragmentation pattern.

Although the Tomcat is a two-seat aircraft, a good RIO keeps this mindset: it's my jet, my mission, my ordnance, and, ultimately, my responsibility. ◄

Lt. Cain is an instructor with VT-10. At the time of this story, he was assigned to VF-32.

# The Most Dangerous Time in My Career

By Cdr. J.A. Symonds

I have had a long career that includes more than 4,000 hours and 1,000 traps. I was just beginning the tour to which we all aspire—XO/CO of a squadron. At the very time I was supposedly at the peak of the business, I was the most dangerous I had ever been as a pilot. The combination of a long layoff from operational flying and the boost in confidence that comes from screening for command led to a real rustiness in the cockpit, which I did not feel and would not admit.

It had been 16 months since my department-head tour, and I was coming from my first non-operational billet in 16 years. I had kept current, though barely so, by flying with the FRS. In fact, my NATOPS currency lapsed once during that period. Still, I had a very successful CQ refresher with the FRS and felt ready to climb right into the fire. So here I was, back in the fleet.

During my first month onboard, my new squadron flew 1,000 hours. The air wing was embarked for the ITA at-sea period. During that first month, I pulled some of the biggest bonehead errors of my career:

•One day, during post-start checks, I cleared the canopy with the BN and started to close it. When it was within eight inches of being closed, I looked up in horror to find my own left hand resting on the canopy bow. I would have lost four fingers in the next three seconds. To answer your question, I don't know what I was thinking about.

...I pulled some of the biggest bonehead errors of my career...

•In a similar situation, (engines running and in the chocks), I tried to secure the generator switch. I calmly lifted the guard on the engine/fuel master switch and flipped it off instead. I saved an inadvertent shutdown of the engine only with a quick reset of the switch. It was one of those "them that have and them that will" things that I had never done. I was no closer to being an all-up fleet pilot in the air.

•On a night bomb-smoke sortie, we had a little trouble pickling the smoke into the water. On the run when it finally came off, I just kept pickling bombs, somehow thinking I would simply be helping to release the smokes. I wasted a training opportunity with an amazing lapse in memory about how pulses continue to be sent to the multiple ejector rack with every mash of the pickle button.

•On the ball, normally the safest place to fly with me, things got scary. I was building a trend of getting high at the ramp, then reducing power to land. Nothing out of limits or seemingly dangerous, but I carried from my last deployment a salty habit of returning the throttles from military to idle before the end of the wire's runout. On one day pass, I put those two bad habits together to produce a cut in the wires, one thing I never thought I would do.

A simple lesson often learned: take a hard look at yourself and your flying abilities whenever you're moving from one tour to the next, from one rank to the next, from one billet to the next, especially when the move involves an increase in leadership and management responsibilities. New department heads and XOs are in all three of those transitions at once. The situation is exacerbated by a feeling one must be the most impressive aviator immediately upon reporting aboard.

Cdr. Symonds is the XO of VA-165.

# CHOCK TALK

By Cdr. Mark Danielson


Peter Mersky

Chocks are rarely the subject of exciting stories of aviation derring-do, yet they can cause disaster. The square, plastic chocks currently in the inventory may provide a false sense of security to both the pilot and the mechs working around the aircraft. These chocks work well on a dry ramp, but are ineffective in holding an aircraft when the surface is wet or slick from oil, fuel or hydraulic fluid, or when the deck is rolling and pitching.

If the aircraft is parked on a ramp with a slope, the aircraft can slide downhill without even having an engine turning. Aircraft that lack parking brakes and that are powerful enough to taxi under idle power can have a real problem. If the pilot releases the brakes when the plane captain signals the chocks are in, the aircraft may promptly move forward while the chock is pushed along the ground in front of the tire.

We could easily eliminate the problem by using triangular chocks that permit the weight of the aircraft to ride up on the chock. Rubber chocks would provide better grip under severe weather conditions and do not pose the FOD hazard that wood does.

The Canadians use thick ropes as wheel chocks, which permit the weight of the aircraft to ride up on the chock and prevent slippage. In Canada's severe weather, the ropes are more effective than other chocks.

The pilot must be aware that while chocks may be under the aircraft, they may not always work. Pilots flying aircraft that have parking brakes should set them any time the aircraft is stopped (unless prohibited by NATOPS, as during cold-weather operations). Pilots flying aircraft that lack parking brakes should ride the brake pedals any time people are under the aircraft and watch for movement.

Mishaps relating to chock slippage are rare because ground crewmen are quick to jump out of the way and are generally trained to avoid standing or sitting near the path of a wheel. However, until the square chocks are replaced with an improved design, the potential for mishaps is there. ◀

Cdr. Danielson is the relocation officer for NAS Dallas.

*The author makes a good suggestion, however, the triangular chocks he describes are not under consideration at this time. Problems with chocks should be reported to the Commander, Naval Air Systems Command through the aviation hazard reporting system. Consideration can then be given to designing and developing a new model.—Ed.*

**If you must assume anything while flying, always assume the worst case.**

# LOW-ALTITUDE LESSON

By Lt. Paul Ruchlin

It was another hot and humid evening about halfway through our Puerto Rico weapons det. As a student nearing the end of the FRS syllabus, I was finally beginning to feel that I could handle the right front seat of the S-3. We were scheduled for a low-altitude systems mission over water at night. We would have a SENSO student and his instructor in the back seats.

The mission and crew briefs went smoothly, and I was ready for the flight, having flown with my instructor pilot several times before. We decided to make a Virgin Islands FAM to burn up the hour of remaining daylight after our launch before heading to the north op area for our training.

The last rays of light were quickly fading as I checked us into the warning area. The backseaters had acoustic training to do and asked us to find a surface contact for "prosecution." I found a likely target on the radar, and we began our descent to drop sonobouys and complete the low-altitude portion of the flight. Once we marked on-top of our target at 400 feet (the NATOPS limit for S-3s at night), the SENSOs deployed buoys and began their work while my instructor and I discussed the dangers and peculiarities of flying low over the water at night.

The night was dark without much of a moon, but the weather was clear with a discernable horizon. About 20 minutes after we marked on top of the target ship, one of our squadronmates checked into the area for a similar mission. They coordinated with us on squadron tactical to work the same contact since it was the only ship in our area. Because the backseaters were concentrating on acoustics, I had to maintain the TACPLOT, setting up the pilot's display to mark-on-top buoys, and evaluating and entering the MAD hits into the computer.

Because of my limited experience, the flight instruments began to drop from my scan. The radar altimeter altitude warning system (RAAWS) in the S-3B gives warning tones at three different altitudes. It will beep for two or three seconds as the aircraft passes through whatever altitude you set the bug to. It will also beep two or three seconds passing through 400 feet, and it will constantly beep any time the aircraft is below 200 feet AGL. However, the tones are heard only in the pilot's and copilot's helmets. Knowing we would be below 500 feet for a good portion of the flight, I set my RADALT bug at 300 feet.

At some point, I remember hearing the RAAWS tone for a few seconds, then it stopped. A moment later, I heard the tone come on and go off again. Without ever looking at either altimeter, I assumed that both times my pilot had gotten a bit low then pulled back up through 400 feet. After all, he had plenty of experience. A short while later, I suddenly realized the beeping I was hearing again wasn't going away. After what seemed like 10-20 seconds, it dawned on me that the RADALT was probably trying to tell me something important, and as I finally looked to see what it was, I felt the plane lurch upwards as the needle passed through 100 feet.

With my ingrained student mentality, I mentioned to my pilot that he'd really gotten me that time, and it was a good lesson in maintaining my scan. However, the real lesson came when he replied that he hadn't been trying to prove anything. He was partly preoccupied with keeping sight of the other airplane, and he never intended to go below 400 feet. You never break NATOPS to prove a point! We spent a few more minutes on station, at 1,000 feet, before RTB. On the way back, we discussed how we got into that situation and how each of us might avoid a similar incident in the future.

Several points were really driven home to me that night. First, it doesn't matter how good you are with the systems if you forget basic airmanship. Nobody will know how many different things you were doing in the cockpit when you flew into the water. Next, experience is never a shield against mistakes. My trust in my pilot and my incorrect assumptions kept me from looking at the RADALT the first two times I heard the tones. If you must assume anything while flying, always assume the worst case. And finally, do not ignore the warning systems in your aircraft. When you hear or see an indication of a problem, take a few seconds to check it out. ◄

Lt. Ruchlin flies with VS-30.

# BRAVO ZULU

Left to right: Lt. Mark A. Whittle, Lt. Richard A. Skiff, AW1 David R. Focht

Lt. Mark A. Whittle
Lt. Richard A. Skiff
AW1 David R. Focht
HSL-37

While making a functional checkflight from NAS Barbers Point, the crew of Easyrider 62 noticed their SH-60B's No. 1 engine's power turbine (Np) was beginning to fluctuate. Seconds later, Np dropped to 30 percent while the No. 1 engine's visual information display (VID) indicated that the engine was being driven to temperature-limiting/maximum power.

Faced with conflicting engine indications, Lt. Whittle (HAC) diagnosed the emergency as an engine high-side failure. He controlled main-rotor rpm (Nr) at 105 percent while maintaining level flight at 1,000 feet.

Lt. Skiff (copilot) pulled out the PCL and reviewed the procedures for an engine high-side failure. During the 15-mile transit, AW1 Focht (SENSO) provided radar vectors to NAS Barbers Point and assisted Lt. Skiff in completing the checklist for immediate landing and ditching.

During the descent for landing, Nr again rose rapidly to 118 percent. As briefed by the HAC, Lt. Skiff retarded the No. 1 power-control lever and manually set 100 percent Nr. Lt. Whittle then landed at the air station.

An inspection showed a malfunctioning Np sensor in the No. 1 engine, which was giving erroneous indications. Sensing a drop in Np, the Np governing feature of the engine's electrical control unit drove the engine to maximum power.

Crew coordination and systems knowledge enabled this crew to diagnose and combat an emergency that did not portray all the classic symptoms described in NATOPS for an engine high-side failure. ◄

Lt. John Brown
Ens. Marcus Camacho
VT-10

Lt. Brown and Ens. Camacho were holding at 3,000 feet at the initial approach fix, NAS Pensacola, ready to begin the TACAN arcing approach. When cleared for the approach, Lt. Brown couldn't reduce power on his T-34C.

Realizing that the engine was in an uncontrollable high-power condition, the crew climbed and turned toward the field for a precautionary emergency landing.

Once within dead-engine glide range, after reviewing the procedures for high-altitude power loss, Lt. Brown and Ens. Camacho shut down the trainer's engine and entered the emergency landing pattern.

The crew flew an engine-out pattern and landed.

An inspection revealed that the "11-inch rod" spherical bearing was defective, causing the fuel-control unit to remain in a max-power setting, without response from the power-control lever.

Lt. Brown received the Navy Achievement Medal and Ens. Camacho received a Letter of Commendation for their efforts during this incident. ◄

Left to right: Lt. John Brown, Ens. Marcus Camacho

Left to right: Ens. Ronald Barrett, Lt. Greg Ball

Lt. Greg Ball
Ens. Ronald Barrett
VT-10

During an airways navigation training flight, Lt. Ball and Ens. Barrett were at 8,000 feet and 50 miles away from NAS Pensacola, when they felt severe airframe vibrations and saw indications of engine failure, coupled with erratic fluctuations on their engine instruments.

Lt. Ball turned toward the nearest paved field. He reviewed NATOPS with Ens. Barrett and secured the engine.

With the paved field less than two miles away, the crew decided not to bail out. Lt. Ball declared an emergency with Approach and asked that they clear all civilian aircraft away from the immediate vicinity.

Lt. Ball manually lowered the landing gear, then entered the emergency landing pattern at a small, uncontrolled field with a runway with less than 5,000 feet of paved surface. The field had just a VHF unicom radio; the T-34C has only UHF.

Ens. Barrett helped Lt. Ball fly an engine-out pattern and landing. The cause of the engine failure is under investigation.

Lt. Ball received the Navy Achievement Medal and Ens. Barrett received a Letter of Commendation for their efforts during this incident. ◄

Maj. B.D. Bielenberg, USMC
VMAT-203

Returning from an ACM sortie, Maj. Bielenberg intended to recover with a deceleration (decel) to a hover and vertical landing. During his approach and decel, he noted that his AV-8B was sensitive in the roll axis. He cross-checked the pressure in the reaction-control system and the indications from the stability augmentation system. Both appeared normal.

He continued with his landing approach, but as he slowed below 50 knots, the Harrier began an uncommanded left roll. He countered with full right stick. The AV-8B began a sluggish right roll, followed by a more rapid right roll.

Maj. Bielenberg couldn't counter the roll with the reaction-control system, and he quickly added full power, waved off and transitioned to conventional flight. After declaring an emergency, he made an uneventful conventional landing.

An inspection revealed both inboard-idler bell cranks had fractured, breaking the lateral-reaction control system.

*Maj. Bielenberg's quick assessment of the situation and particularly quick reactions at low altitude prevented a probable Class A mishap. – Ed.* ◄

BZs require an endorsement from the nominating squadron's CO *and* the appropriate CAG, wing commander, or MAG commander. In the case of helo dets, the CO of the ship will suffice. A 5-by-7-inch photo of the crew by a squadron aircraft should also accompany the BZ nomination. Please include a squadron telephone number so that we can call with questions.

# Consider Us Lucky

By LCdr. Gene Burns and
Lt. Mike Cummings

We were navigating through an area of scattered thunderstorms in our UC-12B. We avoided most of the cells and maintained a smooth, uneventful ride by using the weather radar and looking outside.

We were only 50 miles from our destination when Approach told us to expect a PAR to runway 28. The controller gave us the freedom to deviate for weather, but told us to fly direct-destination VORTAC when we could.

Until now, we were satisfied with ourselves. We had avoided a lot of weather and were close to landing. The ATIS at our destination was calling 3,000, broken, and five miles in haze. The temperature and dew point were somewhat disturbing at 95 and 62, respectively, which jogged my memory. I recalled that large spreads indicated severe weather and possible microbursts.

The ATIS was only 15 minutes old, and we were now underneath the broken layer and, for the most part, VFR. We were aware of the fast-moving thunderstorms west and north of the field. We had the cells on the radar, and the final controller put us on a base leg at 1,500 feet at eight miles. Even though we were in clear air, we were beginning to get a moderate chop. The cell to the north was showing some virga and intense lightning. The final controller gave us the initial turn to final, which would take us close to the cell, but we would remain out of it. The copilot commented that he would maintain 160-170 knots because of the turbulent air. I agreed.

About half-way through our turn, it happened. We entered the turbulence and lost control of the airplane. When we regained control, we were at 800 feet and 130 knots. Instinctively, the copilot brought the power up, and I brought the props up. Although we had full power and were fairly light, we were getting only a 500-fpm climb.

By now, we had the PAR controller's attention and, in a high-pitched voice, he was telling us to climb and turn.

As I reported the microburst, I also picked up the VASI to runway 28. We continued the approach and landed. Shortly after we touched down, the field went zero-zero as the storm moved overhead.

Our training helped us notice and fly out of the microburst, but what if we had been lower when it hit us? We might not have been so fortunate. ◀

LCdr. Burns and Lt. Cummings are assigned to NAF Detroit.


# Lessons in the Gulf

Ltjg. Stefan Perry

It was the night the ground war started and our CH-53E detachment working out of Bahrain was tasked with its first "operational necessity" mission: to deliver an emergency repair team to USS *Tripoli*, which had struck a mine off the coast of Kuwait. After a thorough brief, we launched at approximately 2000 local time with a solid 500-foot ceiling and two miles visibility.

Shortly after takeoff, we noticed that not only did our navaids in the aircraft not work (all ground stations were shut down), but the omega was not working either. We flew by dead reckoning, under the ceiling, more than 200 miles toward Kuwait. At approximately 2140, we got a lock on the ship's TACAN with just 10 minutes left to our bingo.

At around 10 miles from the ship, the HAC reiterated his brief about landing on the boat at night.

He said he would maintain 300 feet using the baralt until we were on final. If at anytime we didn't feel comfortable with something, we should call for a waveoff. If someone called for power, and the pilot did not make an immediate positive correction, the pilot not at the controls should assume the controls.

The radios crackled as we listened to a SAR scenario on guard with the fixed-wing guys rolling in on the bad guys, and for the first time, we saw the burning oil wells in Kuwait. I think I can speak for both of us in the cockpit when I say we were a little scared. My survival knife and pencil flare didn't exactly make feel like I was "loaded for bear." I don't think our minds were completely on flying that night.

After rolling downwind, we called abeam and the HAC began a descending, decelerating turn towards final, contrary to our brief! Without a visual horizon and a cross-cockpit landing, the helicopter's nose began to fall through the attitude gyro's artificial horizon.

At 200 feet, with a 700-800-fpm rate of descent, I called for power. There was no reply. At 125 feet, just an instant later, I called for power again. This time, not feeling the collective in my armpit, I took the controls and pulled power until the VSI read zero. We recovered at about 70 feet AGL. After climbing back up on to glideslope for the approach, the HAC made the landing on the boat.

Our trip back to Bahrain was uneventful and we landed at around 0100 local time.

Back up the pilot at the controls; don't trust him. Even if you have flown with him many times, if he's your friend or your mentor, whatever, people make mistakes!

Also, brief thoroughly; it saved both of our lives. Although the HAC lost the bubble, his preflight and inflight preparation meant the difference between life and death.

Learn from your mistakes and emphasize your lessons learned to prevent future mishaps. And don't ever think this can't happen to you. I did the same thing on my third flight as a HAC under similar circumstances. The lessons learned on this flight saved me and my crew just a few weeks later. ◄

Lt. Rapp currently flies with HC-4 in Sicily.

Lt. Corrine Kelley

# Winds or Deck:

## Which Would You Choose?

By Lt. Pat Hurley

One of the questions posed to me at my HAC board was, "Which would you choose: a deck that was pitching and rolling out of limits, or winds that were well outside the prescribed NATOPS wind envelopes?" I immediately answered that I'd want good winds, and I'd take my shot at the deck. It was one of those questions that has no right or wrong answer. Rather, it portrays a situation that none of us wants to be in, but could very easily encounter. We should think about it before we find ourselves confronting it at the end of a long flight when we are tired and low on gas. Just 11 months before my board, I had been in that exact situation.

I was deployed for a seven-week patrol in the Caribbean on a ship that never seemed to ride smoothly, no matter what the sea state. At the end of a three-hour flight, I was ready to bring my SH-2F back, expecting a routine day landing.

As we closed the ship, it became obvious that the deck was pitching and rolling beyond NATOPS limits. I thought that once they steadied up on course, the ship would smooth out.

The HCO told us that what we had was the best they could offer. We would either have to take the deck out of limits, or when they turned to smooth out, the winds would be out of limits. I turned to the HAC and asked what he wanted. Since it was a "right seat only" approach, it would be my landing.

He said, "You make the call; it's your landing." It was decision time. For some reason, I thought the decision was beyond my level of experience. We discussed it for a few minutes, and I decided to go with the good winds and the bad deck.

As we closed to within a quarter mile, the ship was pitching and rolling far beyond anything I had ever attempted before. With helpful glideslope calls from the HAC, I established a hover over the deck and began waiting for what seemed like an eternity for the deck to smooth out long enough for me to set the aircraft down. It actually turned out to be only 30 seconds, but the deck did steady up and I landed. The guys running chocks and chains immediately secured the aircraft to the flight deck. At that moment, those dirty, rusty chains looked like shiny gold.

As we shut down and I took my cramped and shaking feet off the pedals, I could only think about what a learning experience the previous five minutes had been. Now I know what I'll choose if I'm ever in that situation again.

Which would you choose? It pays to think about that and other out-of-the-ordinary scenarios before facing a tough choice on a stormy night with no place else to go.

Lt. Hurley flies with HSL-34


*Choosing the lesser of these two evils (pitch-and-roll out of limits, or winds outside the envelope) is not easy. There are a lot of factors to consider to determine the best choice. Assuming there is no divert, ask yourself these three questions.*

*Are the ship's heading and speed optimum for the best possible deck conditions, or just the most convenient for the OOD? Ensure the CO of the ship and fellow aviators onboard are involved in assessing the situation. Most ships' COs can work wonders with deck conditions that overwhelm even the most experienced OOD. Having a fellow pilot on the bridge is also a cheap form of insurance. He can answer questions, provide insight, and in general, promote good communication between the ship and aircraft.*

*Is it day or night? A day landing on a deck that is pitching and rolling out of limits is completely different than landing on a black night without a horizon. At night, when you don't have the benefit of a good horizon, it may be better to get a steady deck and work with existing winds.*

*How big is the deck? If you're having problems and the deck is big enough, you may have the option of landing athwart ship or facing aft to get the nose into the wind while benefitting from a steady deck. Granted, this is not a routine practice and poses many risks in itself. You should carefully weigh the pros and cons, and considering the size of most decks we operate from, this is usually not an option, anyway.*

*As this story points out, the best time to consider your options is before they confront you in flight. Formulate a game plan, work with the ship, and you'll be watching the evening movie instead of taking that unplanned swim.—LCdr. Paul Romaine, H-2/H-60 analyst, Naval Safety Center.* ◀

# Even the *Small Ones* Can Get You

# Wake Turbulence and Vortices

By Capt. Chris Habig, USAF

Last year, two Navy personnel died when their 10-passenger twin crashed on short final. I was a member of the safety board that investigated the mishap. We concluded that an F-16's wake turbulence put the twin out of control. At first, I didn't think the wake from an 18,000-pound F-16 could be strong enough to force a 10,500-pound airplane into the ground from 500 feet AGL, but it was.

None of the pilots on the board knew that small airplanes could generate dangerous wake turbulence. We emphasize safe separation behind large jets, but we don't recognize the dangers of wake turbulence behind smaller aircraft. Every aircraft can generate dangerous wake turbulence. In fact, any aircraft the same size as yours or larger is a hazard.

The strength of an aircraft's wingtip vortices depends upon several factors: the aircraft's speed, weight, and wing shape. When I began investigating this mishap, I already knew the effect of speed: slow aircraft generate stronger wakes. I also knew that heavy airplanes generate stronger vortices than lighter airplanes. I knew nothing, however, about the effect of wing shape. Without that knowledge, it's impossible to accurately assess the danger of an aircraft in front of you.

Take this fill-in-the-blank test. A 25,000-pound airplane with a 25-foot wingspan generates wake turbulence (*how many times as strong*) as a 100,000-pound airplane with a 100-foot wingspan. A year ago, I would have answered "one-fourth." Boy, was I wrong!

When discussing wing shape, we must consider span and configuration. For a clean wing, vortex strength is a function of weight divided by wingspan, not just weight. This ratio is called span loading. It's a measure of how much weight the wing carries per foot of span. It's also the factor of wake turbulence that isn't well known among pilots. Simply put, the span loading will tell you more about the strength of the wake than weight alone.

To answer the question I posed earlier, divide the weight of each airplane by its wingspan to get span loading. Since the span loading of each airplane is the same, their wingtip vortices have the same strength! Surprised? So was I. This calculation was for a clean wing; what happens when you lower flaps?

Lowering flaps weakens the vortices, but that doesn't mean you'll be OK. The airplane in front of you has its flaps down. The vortices start out just as strong as those from a clean wing (remember the span loading). Anything hanging from the airplane (flaps, slats, spoilers, speedbrakes, landing gear) creates turbulence, which makes the vortices dissipate faster. You can't ignore them; they're still there.

Of course, the mere presence of wake turbulence doesn't invite disaster. Another airplane has to fly through the wake before anything bad can take place. Let's see what happens during a vortex encounter.

## •Flying Into a Vortex

A vortex, by its nature, will eject an aircraft that flies into it. You can't get trapped in the middle. Unfortunately, at low altitude, the aircraft may be thrown out in an attitude or direction from which it cannot recover. How does this happen?

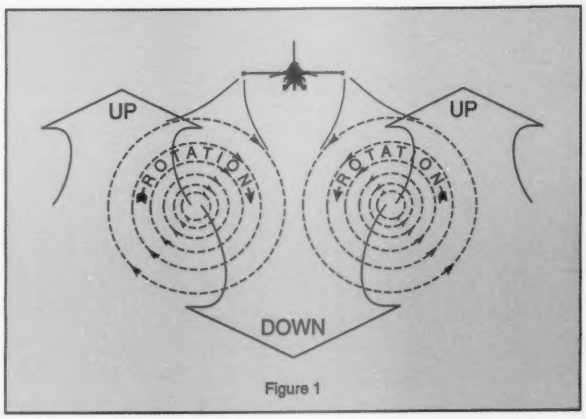


Figure 1

Figure 1 shows the vortices produced by a wing. The tornado-like flow of either vortex can quickly put you into an unusual attitude, especially if your wingspan is short enough to fit inside it. Your ability to counter the vortex depends on how well your aircraft rolls. In the mishap I investigated, the roll rate caused by the wake turbulence was three times greater than the mishap aircraft's maximum roll rate.

Since fighters roll better than most airplanes, you might think they'd be immune to wake turbulence. They aren't! The upset can be so powerful and sudden that you may not have the time or the altitude to react. Here's a case in point.

The T-38 is the fastest-rolling airplane in the Air Force, but the vortex from another T-38 two miles in front is so strong that it takes 70 percent of the T-38's roll capability just to counter it. Scary as that is, you may have to deal with more than just an unusual attitude.

There is a general upward flow of air outside the wingtips, and a general downward flow between the wingtips. The strength of the flow is surprisingly strong. I calculated the downwash of our 18,000-pound F-16 to be 3,800 fpm. If you're unlucky enough to get thrown into that downwash at 150 knots (ballpark for a fighter), you will quickly lose 14 degrees angle of attack (AOA) over most of your wing. That could be enough to put you at negative AOA and send your stomach to the roof of your mouth. In fact, it only took our twin seven seconds to fall from 500 feet AGL to the ground.

McDonnell Douglas Corp.

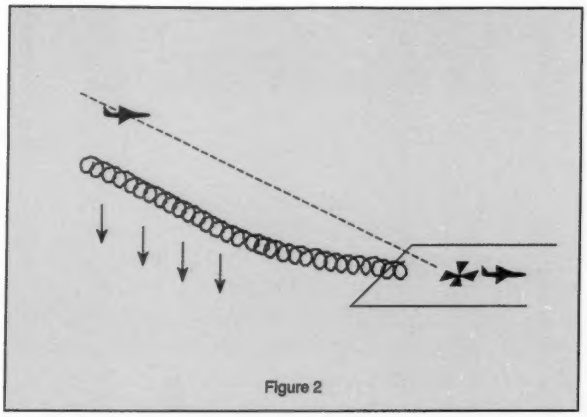



Figure 2

## More Than One Mishap per Year

From 1976 to 1987, the USAF had 12 wake-turbulence mishaps involving identical fighters (i.e., F-15 behind F-15). Fortunately, none of these resulted in destroyed aircraft or fatalities, but each involved a loss of control and aircraft damage. Why don't we have more mishaps? It's because we usually fly the same glidepath as the plane in front of us (Figure 2). As the wake sinks, the No.2 aircraft will be safely above it. Separation criteria usually assure enough time for the wake to sink out of our way. In some situations, however, the standard separation may not keep you safe. A tailwind can blow the vortices forward into your flightpath. A shallow approach (i.e., no flap) may put you in the middle of the wake. In these cases, either increase your separation or go around to give the vortices time to dissipate. ◀

Capt. Habig is an experimental test pilot with the 445TS at Edwards AFB.

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*3. Heath, C., Wake Vortex Accident Investigations in the 1980s: Four Case Studies, AFWAL-TM-87-179, July 1987.*

*4. Nelson, Robert C., The Dynamic Response of Aircraft Encountering Aircraft Wake Turbulence, Xerox University Microfilms, Ann Arbor, Michigan, 1974.*

*5. USAF Fighter/Trainer/Attack Aircraft Mishap Summary: 1976 through May 1987, from a search of the USAF Safety Center database, May 1992.*

# Remember, You Read It Here First!

By LCdr. Greg Gallagher

After my first cruise, I was assigned to ferry an H-2 from the rework facility near the East Coast to my squadron in San Diego. The flight would take several days and seemed like a good deal. Besides me, our crew included a senior aircrewman and a third-tour lieutenant commander who was new to the squadron.

For the first three days, the weather was beautiful, and the flying was great. On the morning of the fourth day, we launched from an Air Force base (the only places to stay on a cross-country) in north central Texas and headed to another in west Texas . The Air Force weather-guesser warned of icing at 3,000 feet, and since the minimum IFR altitude was 4,000 feet, he recommended that we try to scoot under the overcast Special VFR.

At takeoff time, the ceiling was a 2,500-foot overcast, but the visibility was excellent. As we flew west, the ceiling gradually lowered and the visibility decreased. About 80 miles from our departure point, we could see a wall of low clouds extending for miles in both directions across our route. Being fully IFR (I follow roads) equipped, we decided to try to follow the interstate to our destination.

We started down the interstate at 1,500 feet and 90 knots, but we had to descend and slow down as the ceiling and visibility continued to deteriorate. After 20 minutes, we were down to 500 feet and 55 knots. I could see that the cars and trucks beneath us were going faster than we were. By now, all normal communication inside our aircraft had stopped as we strained to see ahead. I could imagine power lines looming out of the fog.

Finally, after several inadvertent IFR encounters, the crewman said something that probably saved our lives.

"You know, this is the kind of stuff you read about in *Approach*."

The tension disappeared, and I realized immediately that it was OK to question what we were doing there because he was right. I had been sitting there, afraid that we would hit something and thinking how stupid it was, but I was afraid to say something. As it turned out, the other pilot was thinking exactly the same thing. Both of us were afraid to look like non-hackers who couldn't handle some low clouds.

Now that we were clear on what we should do – return the way we came – we were flying by our tenuous contact with the road below. We didn't want to stray from it lest we hit one of the many antennas that dot the west Texas countryside. Since we were depending on the highway for visual clues, we used a clover-leaf intersection to reverse course and return to our takeoff point where we could refuel and wait for better weather.

If it feels wrong, it probably is. And it never hurts to ask, anyway. Don't let pride, shame, or the thought that you might not be a hacker get in the way of staying alive and safe. We were fortunate that we had a good crewman who wasn't afraid to speak up when he had to. ◄

LCdr. Gallagher flies with HSL-34.

# BROWNSHOES IN ACTION COMIX

"The kind real aviators like"

— But Cdr. Ward Carroll

"Well, this all but invalidates my don't-sweat-the-small-stuff, just-worry-about-the-big-picture crew coordination policy..."

## Vultures' Row

This list includes Flight, Flight-Related and Ground Class A Mishaps during FY-94.
Classifications and descriptions are subject to change.

| DATE | AIRCRAFT | COMMAND | DAY; NIGHT | FATAL | FLIGHT REGIME; LOCATION |
|---|---|---|---|---|---|
| 7 Oct | UH-1N | HMM-163 | N | 1 | Takeoff; at sea |
| 14 Oct | UH-1N | HMM-268 | N | 0 | Towing, aircraft fell overboard (AGM); at sea |
| 15 Oct | AV-8B | VMA-231 | D | 0 | Birdstrike during low-level; Raleigh, NC |
| 29 Oct | F/A-18D | VFA-106 | D | 0 | Aborted takeoff; Whiting Field, FL |
| 18 Nov | F-14A | VF-84 | D | 0 | Training flight; Currituck Sound, NC |

# Drinking
## Impairs Your Driving

UNITED STATES NAVAL SAFETY CENTER

# Don't Risk It!